

ANR-ORACLE : Selection of climate change regional projections

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Climate projections : ANR-ORACLE project needs

Meeting 3 April 2012 Paris discussions outcome

- ▶ Hourly data is needed
- ▶ Continuous projections if possible, but needs confirmation
- ▶ 5 projections ?
- ▶ 3 ARPEGE RETIC : A1B A2 B1 (GHG scenarios : only interesting from 2045)
- ▶ 3 projections ENSEMBLES A1B with choice using $\Delta Pr/\Delta T$ 2046-2065 and 2081-2100 vs 1961-1990 : maximize dispersion
- ▶ **Action** : Regenerate $\Delta Pr/\Delta T$, with mean & variance for ARPEGE RETIC + ENSEMBLES

Following Discussions - 1

Notably with Jean-Christophe, Florence and Jean-Daniel.

A few important aspects

- ▶ Significant results dispersion
- ▶ Entire France dataset has very high volume (hourly=641M/yr/param)
- ▶ Analog dates only ?

Hydrology : Entire France : selection of locations and projections ?

- ▶ Zoom on Seine and Rhine basins
- ▶ Rhine basins need some specific work, notably to be able to have data over Germany (VULNAR : extrapolation by Eric Martin)

Following Discussions - 2

Agriculture : Use all projections on these locations :

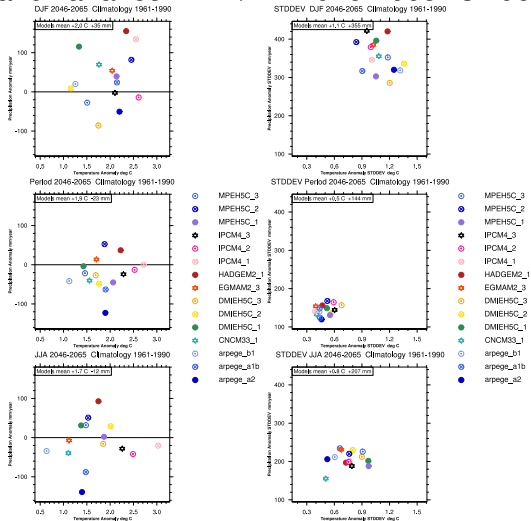
- ▶ To better characterize uncertainties (crucial and fundamental in our project)
- ▶ Proposition of 105 data locations ;
 - ▶ 12 CLIMATOR locations
 - ▶ 45 culture locations as in Calvet et al. 2012
 - ▶ 48 prairie locations as in Calvet et al. 2012
 - ▶ Those locations correspond to SAFRAN data points where ECOCLIMAP shows the greatest cereals proportion in specific departments

Which projections are available ?

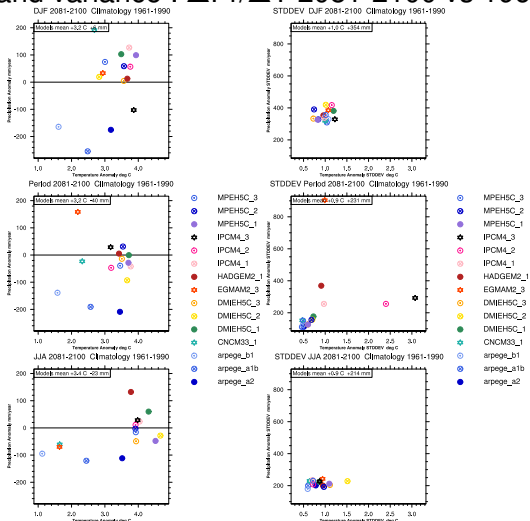
Continuous climate projections 1950-2100

- ▶ ARPEGE A1B 4 members
- ▶ ARPEGE RETIC A1B B1 A2
- ▶ GCM ENSEMBLES (12 projections, 8 models)

Dispersion 2046-2065

Mean and variance : $\Delta Pr/\Delta T$ 2046-2065 vs 1961-1990

Dispersion 2081-2100

Mean and variance : $\Delta Pr/\Delta T$ 2081-2100 vs 1961-1990

Climate projections data provision and number of projections

Decisions, decisions...

- ▶ Analog dates + thermodyn adjustments, or : hydrology (zoom ?), agriculture (selection ?)
- ▶ Number of projections : hydrology (selection ?), agriculture (all ?)
- ▶ Projection selection given average dispersion from $\Delta Pr/\Delta T$ 2046-2065 and 2081-2100 ?